DOE-NARUC National Electricity Delivery Forum

Wednesday, February 20, 2008, 8:15 AM

Thanks very much Commissioner Reha for that nice introduction. It is good be back among so many colleagues this morning. I want to extend my own warm welcome to all of you for coming to the third annual Electricity Delivery Forum. As others have already noted, this event gets bigger and more exciting every year. As I see it, the reason for this growth is one of two things: Either the regulation of utilities at the retail level is finally catching on as the next exciting national phenomenon, or it's because the challenges we face in the electricity sector, whether as regulators, corporate executives, or policy makers, are growing more urgent and critical. Personally, I think it's the former.

In any event, before I begin, I want to congratulate Commissioner Marsha Smith, NARUC's President, and Commissioner Ann George, the new chair of NARUC's Committee on Electricity. Their experience and leadership will be very much appreciated in the months to come as we all grapple with the issues to be discussed here today and tomorrow. I would also like to take a moment and thank Commissioner Kerr for his great work over the past year. Commissioner, you had an appreciable impact on keeping the relationship between our organizations strong during some difficult times, and I think we are all better off as a result.

And, of course, I have to tell you how great it has been over the past three years, for me and my colleagues at DOE, to work with Commissioner Jimmy Ervin in planning this critically important national Forum. His in-depth knowledge and understanding of the subject matter has contributed to meaningful agendas that have highlighted the significant State and Federal challenges in preparing today's electricity delivery infrastructure to meet the demands of the future.

This morning, I will address two of the three grand challenges that are the focus this year's forum. I will leave discussion of the third challenge – climate change and related issues – to Bud Albright, DOE's Undersecretary of Energy, when he speaks to you tomorrow.

Concerning the supply/demand and energy security challenges, I will describe the problems as the DOE sees them and outline for you some of the most important things my office is doing to address these issues.

Of course, the electric industry exists for the purpose of reliably meeting demand. But the way we think about demand has undergone a major and irreversible change in recent years.

Whereas electricity demand growth had been a direct function of economic and population growth, we now have both the tools and the motivation to work with consumers and load serving entities to *influence* electricity demand in a constructive manner.

In the coming years, many of you will be working to find the most effective ways to enable consumers to reduce, shift, or otherwise affect the pattern of electricity demand to reduce the rate of electricity demand growth as well as the need for additional peak generation capacity. DOE will certainly be supporting your efforts.

In turn, however, the effectiveness of this hard work will need to be measured so that we all can know, with some degree of confidence, what the adjusted level and shape of future electricity load will be, both at the local and regional levels.

You will be at the cutting edge in these important initiatives, and I am pleased to say that members of my staff and some of the most talented people from our national laboratories will be here to assist you in your work to design demand-side programs and gauge their effectiveness.

On the generation side, every kilowatt-hour of demand that is not met through energy efficiency or demand response programs will have to be met from the supply side, and there is ample reason to expect that the need for net new generation capacity will continue to increase, if at a slower pace. (EIA's latest projections show a 35% increase in U.S. electricity demand by 2030, and an even larger increase in worldwide electricity demand.)

Along with many of you, I am concerned about the uncertainties that now make decisions about investing in new generation capacity especially difficult. Each of the possibilities on the menu, whether the choice is renewable energy, nuclear, coal, or natural gas-fired capacity, faces some combination of hurdles. These include regulatory uncertainties, technological challenges, construction costs, fuel availability and price, and in many cases opposition from local stakeholders.

Obstacles and uncertainties such as these inhibit timely investment decisions. We need to do what we can to address these issues now, however, because the future holds new and unexplored uncertainty. Clarification of the rules and costs associated with carbon emissions is perhaps the most significant of these.

Notwithstanding the likelihood for greater certainty in the near term, or the necessity for Federal action in this area, climate change challenges will certainly complicate long-term regulatory stability (unanticipated implementation issues, cost and credit allocation, new scientific findings, net economic effects, and technological progress). Uncertainty has become a constant headwind in the electric sector. We must work together to make progress in this environment.

I think this means increased emphasis on a "no-regrets" approach (or perhaps I should say minimal-regrets). Strategies that emphasize investments in energy efficiency, demand response, and effective integration of large scale renewable generation into the grid come to mind.

And we need to anticipate the implications of some new strategies. For example, continued strong emphasis on new natural gas-fired generation is likely because such capacity is less capital-intensive and has shorter lead-times than coal and nuclear alternatives. Continuing further down this path, however, is likely to lead to higher electricity prices for consumers and make us increasingly dependent on foreign suppliers and volatile international markets.

Accordingly, it will remain prudent for us as a nation to invest to a substantial degree in clean coal and nuclear generation capacity. This strategy will require a clear-eyed recognition that these latter technologies involve some additional costs and investment

risks. Nonetheless, paying such premiums will be appropriate and necessary to maintain sufficient diversity in our generation fleet.

Of course, most if not all of you recognize the hurdles that lay ahead and are working collaboratively to meet them. In this spirit, I would like to share with you what we are doing at DOE to meet these challenges.

To support these efforts and to provide guidance to my office in making decisions on strategically important electricity-related questions, the Secretary has approved the creation of an executive--level Electricity Advisory Committee. The Advisory Committee is chartered to address a broad range of electricity subjects, including demand and supply issues, our R&D program, electricity storage, smart grid questions, and energy security matters. We have identified the slate of nominees, and hope to announce the appointees and have the Advisory Committee in operation this spring.

We will also continue to work with national and regional groups and organizations to facilitate both regional-scale transmission planning, and planning for non-wires alternatives. We will shortly release details on a proposed plan for consultation with the states and other stakeholders concerning design and preparation of the *2009 National Electric Transmission Congestion Study*, as required by the Energy Policy Act of 2005.

DOE also recently agreed to partner with the Western Governors' Association to promote regional planning and renewable electricity generation development in the Western Interconnection.

Through a transparent and inclusive stakeholder process, WGA, state officials, DOE, national labs, generation developers and other stakeholders will identify and rank potential renewable energy areas and consider the transmission development needed to deliver electricity from renewable resources in these areas to load centers.

I want to turn now to another of the grand challenges, maintaining energy security and achieving grid modernization. We are on the edge of what could be a major technological and institutional transformation of electric distribution; a transformation often referred to as "building a smart grid."

If built, this new infrastructure will feature advanced components with computerized intelligence and communications links that will increase overall system efficiency and enable delivery of a richer and broader menu of services to customers at reasonable cost, and enable consumers to be interactive users of the system. These new local-level systems will be more resilient and adaptable when grid operators are faced with natural disasters, severe weather, unplanned outages of major generation sources or transmission lines – in short, they will offer major improvements in electricity reliability and security.

The development of local-level smart grids will have important ramifications for the generation and transmission components of the electricity infrastructure, even though some of these linkages and effects are not yet apparent.

Getting there from here, however, that's the challenge. The technologies I have described are real today; most of the engineering challenges have been or soon will be overcome. We need to work together now toward identifying and overcoming any regulatory barriers. Your announcement of the NARUC-FERC smart grid collaborative dialogue is a major step in this regard, and I applaud you for it.

Your announcement is also timely. The enactment this past December of the Energy Independence and Security Act of 2007 included provisions that will aid and focus the smart grid transition process. The Act directs DOE to:

- Implement a program to research, develop, and demonstrate smart grid technologies.
- Report to Congress every two years on the status of smart grid deployments.

- Establish a smart grid advisory group and an energy storage advisory group. The Electricity Advisory Committee I described earlier will fulfill these functions.
- And, Establish a smart grid task force among relevant federal agencies.

In addition to facilitating the smart grid transition, OE will continue our work with the Department of Defense and the Department of Homeland Security on matters related to the physical and cyber security of the Nation's energy infrastructure, and in our efforts to assist states, utilities, and others with the restoration of energy services after hurricanes, forest fires, floods, earthquakes, or other kinds of emergencies.

These activities feed into the development of the DOE's vision of the future electricity infrastructure. When NARUC and DOE began these public dialogues three years ago, we focused primarily on the transmission networks, and emphasized the need to expand their capacity and modernize them systematically. Last year, we gave additional emphasis to the need for increased energy efficiency, modernization of the electric distribution system, and improved energy security.

Today, the need for all those changes is more apparent than ever, and it is increasingly clear that we need to address the need for additional, affordable, and diverse generation capacity.

Achieving all of these goals will require massive new investments in an era of great uncertainty. We must work together to achieve these goals without pushing electricity prices to levels that could induce personal hardships, or inhibit economic growth.

With challenges of this magnitude in front of us, we need to be as clear as we can, collectively and on behalf of our respective organizations, about what we want the new electricity supply and delivery system to look like, and what its most important design characteristics should be. In my view, this new infrastructure must be exceptionally efficient; it must have a relatively low carbon footprint; it must provide the electricity needed by a growing economy at reasonable cost; it must be secure against physical and cyber attack;
and it must reduce our vulnerability to broad swings in the price or availability of fuels that are traded in international markets. Finally, it must be adaptable and resilient in the face of technological and economic change that will be ongoing. Increasing the capacity of the transmission and distribution systems; and making them "smarter" electronically will be vital to achieving and sustaining that adaptability and resiliency.

I know this sounds daunting, but we can get there from here. We do that first by continuing our work in this Forum. We maintain a focused, serious dialogue aimed at developing and refining a vision for the electric system of the future that rejects a "one size fits all" approach in favor of tailored, regional solutions.

Second, we keep pressing hard on the questions of fundamental design. In this regard there are several efforts underway worth mentioning. I am thinking of work such as the Western Electricity Coordinating Council's Transmission Expansion Planning Policy Committee, which is developing a common, integrated transmission planning framework for the Western Interconnection. Earlier I mentioned a parallel effort -- the Western Governors Association's collaborative project to identify the most promising renewable generation resources and determine what regional transmission facilities would best serve the coordinated development of such generation capacity in the West.

In the Eastern Interconnection, the Midwest Independent System Operator, PJM, Tennessee Valley Authority, and the Southwest Power Pool have developed a Joint Coordinated System Plan. This is an ambitious and commendable effort, and over time we may see this collaboration in transmission planning extended to other parts of the Eastern Interconnection. At the distribution level, the Gridwise Alliance is doing extremely important work to forge the architectural backbone and other features of a "smart grid."

As a result of these and similar projects, I expect that within a very few years we will have a much clearer idea of what we want the basic features of the new electricity delivery infrastructure to look like, --

and we will continue to simultaneously focus on the institutional and policy challenges that need to be addressed in order to bring that vision to reality. There is urgency, however.

Even with major efforts to shorten regulatory review processes – such as better coordination among federal agencies in reviewing transmission proposals, the designation of energy corridors across Federal lands, and regional protocols for siting transmission – the modernization and fuller integration of this sprawling and vital system will be a massive, long-term undertaking. As we move beyond the design phase, many project-specific problems will arise and require our attention.

Yet as NERC and the RTOs remind us frequently, reliability and other problems are real and the penalties for falling behind schedule can be severe. Moreover, the energy security challenge is already on our doorstep, and delays in making needed improvements on that front could have costly or tragic consequences.

I will conclude by noting with satisfaction the strong and cooperative working relationship between DOE and NARUC in planning and staging this Forum, and I am confident that this tradition will continue. This is my third Electricity Delivery Forum speech as a DOE official, and probably my last. I look forward to coming to future Forums as a listener.

Keeping the lights on, reliably and affordably, over the next 15 years and into the future will require progress on several fronts, such as raising end-use energy efficiency, accomplishing the smart-grid transformation, improving generation and transmission technologies, building additional generation and transmission capacity, improving energy forecasting, strengthening energy security, and improving systems integration.

Accomplishing this program of work will require sustained collaboration and never losing sight of our intended goals. We are on the right track, but we have a lot to do.